

Guidance notes on part C6 – Variation to a bespoke water discharge activity or groundwater activity (point source discharge), or point source emission to water from an installation



Please read these guidance notes carefully before you fill in the forms.

You only need to give us details in this part of application for the any parts of the permit that will be affected (for example, if you are adding a new facility or making changes to existing ones).

You do not need to resend any information from your original permit application if it is not affected by your proposed changes.

Contents

About the effluent – details and type

1 About the variation you are applying for	3
2 About the effluent – how long will you need to discharge the effluent for?	3
3 How much do you want to discharge?	3
4 Intermittent sewage discharges	4
5 Should your discharge be made to the foul sewer?	4
6 How will the effluent be treated?	5
7 What will be in the effluent?	6
8 Environmental risk assessments and modelling	7
9 Monitoring arrangements	9
10 Where will the effluent discharge to?	10
11 How to contact us	10
Appendix 1 – Discharges to a borehole or well (or other deep structure)	11
Appendix 2 – Discharges into land	12
Appendix 3 – Discharges onto land	13
Appendix 4 – Discharges to tidal river, tidal stream, estuary or coastal waters	13
Appendix 5 – Discharges to non-tidal river, stream, or canal	14
Appendix 6 – Discharges to a lake or pond	14

What am I applying for?

This application is to vary a bespoke water discharge activity or groundwater point source discharge activity environmental permit.

Fill in the part C6 form if you are applying to add or change a point source emission to water, groundwater, or sewer from an installation. This includes emissions of surface water run-off, unless uncontaminated, and/or process effluents (including cooling waters). There is no additional application charge and completing the form will provide us with the information needed to complete the determination of your variation application.

Which forms do I have to complete?

You should have already completed part C2. Now you need to fill in part C6, including any relevant appendices, once for each effluent you are applying to vary.

In addition, if your application is to add or vary a point source emission to water from an installation, you should have already completed part C3.

If you are applying for more than one activity from your site these may all form part of your single environmental permit.

What effluent or effluents are you applying for?

For each individual discharge choose your effluent type from Table 1 and complete the questions indicated in the table.

What do the effluent types cover?

- Trade effluent (known volume): including process effluents, washwaters, close circuit cooling waters, boiler blowdown, filter backwash, pumped minewater
- Trade effluent (rainfall dependent): site drainage
- Trade effluent (returned abstracted water): including fish farms, watercress farms, abstracted cooling water – also follow this category for any discharge of recirculation water arising from ground source heating and cooling schemes
- Intermittent settled storm: settled sewage from a sewage treatment works receiving combined sewage effluent
- Intermittent combined sewer overflow: storm sewage from a sewerage network or discharged at the head of a sewage treatment works
- Intermittent emergency overflow: emergency discharge from a sewage pumping station
- Treated sewage (water company): treated sewage effluent discharge from a sewage treatment works operated by a sewerage undertaker
- Domestic treated sewage (private ownership): treated domestic sewage effluent discharge from a sewage treatment works operated by a private owner or owners (see definition of ‘domestic sewage’ below)
- Mixed effluent (all volumes known): a mix of more than one trade effluent (known volume) or trade effluent and domestic treated sewage which share a treatment facility and common monitoring point
- Mixed effluent (with rainfall dependent element): a mix of trade effluents (known volume) or domestic treated sewage (private ownership) with trade effluent (rainfall dependent) which share a treatment facility and common monitoring point
- Point source emission of effluent and/or contaminated surface water run-off from an installation (either directly to water or groundwater, or via sewer).

Definition of domestic sewage

Sewage shall be solely domestic in origin and contain no trade effluent (as defined in Section 221 of the Water Resources Act 1991).

For the purpose of this guidance ‘domestic sewage’ means sewage from residential settlements and services that originates predominantly from the human metabolism and from household activities. This includes waste water from cooking, washing up and clothes washing at guest houses, hotels, pubs and restaurants where these relate solely to activities on those premises.

For instance, sewage from a guest house preparing meals for its guests and washing its own bedding qualifies as ‘domestic sewage’. Waste water from a site preparing food for consumption elsewhere or washing bedding on behalf of another person does not qualify as ‘domestic sewage’.

1 About the variation you are applying for

1a Give a brief description of the changes you want to make to your permit.

1b Effluent name: This name will be used throughout the application and may be used in the permit to identify this effluent. If you have more than one effluent you must ensure that each name you use is distinct. For example, package sewage treatment plant effluent, septic tank effluent, cooling water, site drainage and so on.

1c Tick the box if this is a release from a dam, weir or sluice ('reservoir release') under Schedule 21 of the EPR meaning of water discharge activity.

1d You need to make sure that you have all the necessary permissions in addition to an Environmental Permit to discharge, for example the permission from landowners for pipework to cross their land or the Canal and Rivers Trust if you want to discharge into a canal that they manage, or the relevant highways authority if you want to discharge via a highway drain.

2 About the effluent – how long will you need to discharge the effluent for?

2a Give a date when you want the permit for this effluent to start.

You cannot discharge your effluent prior to this start date on your permit unless you contact us and ask to change (bring forward) your start date. Charges will start on this date even if you have not started to discharge unless you contact us to change (delay) the start date.

Once you have a permit please think about if any changes are needed to its start date and tell us at least 28 days before the start date so we have time to implement the change before the date arrives – we cannot make retrospective changes.

2b If you are only planning to discharge for a short period you should indicate the last date on which a discharge will be made but please note that your permit will not cease on that date and you will still need to notify us to surrender the permit.

2c For seasonal discharges which will only occur for part of the year indicate the period when the discharge will take place. Where a discharge will continue at a significantly lower rate over a period you should complete this question and also send in details of the seasonal variation. For example, campsites which are closed in winter but have a residual throughput from residential properties on site all year.

2d If you answer 'no' to this question you must be able to comply with the requirement to discharge on six days or fewer in any year as this will be a permit condition. It would apply only to batch processes such as the emptying of fish rearing ponds or planned shutdowns of plant or equipment.

3 How much do you want to discharge?

3a Dry weather flow applies only to discharges of sewage effluent that may contain rainwater; usually the sewage treatment works operated by a water undertaker. Rainwater should be excluded from privately operated sewage treatment systems. Read 'Calculating dry weather flow (DWF) at waste water treatment works' at <https://www.gov.uk/government/publications/calculating-dry-weather-flow-dwf-at-waste-water-treatment-works/calculating-dry-weather-flow-dwf-at-waste-water-treatment-works> on how dry weather flow is calculated and how compliance will be assessed.

3b This is the maximum volume that will be discharged on any day. You must ensure that you choose a volume you can always comply with. For some sewage effluent discharges and some trade effluent discharges you must use the industry 'Code of practice: flows and loads 4' to calculate your maximum daily flow.

'Flows and loads 4 – sizing criteria, treatment capacity for sewage treatment systems (package plants)' is published by British Water (ISBN: 978-1-903481-10-3) and is available at www.britishwater.co.uk.

3c This is the maximum instantaneous rate at which the effluent is discharged. It may be the maximum pumped rate (for example, in pumped discharges of quarry water) or the theoretical maximum flow from a gravity-fed pipe from lagoons used to balance rainfall-dependent discharges. For rainfall-dependent discharges this should typically be based on the 1-in-30-year storm event.

3d In a mixed effluent this will be the maximum total daily volume of all the non-rainfall-dependent elements of the mixed effluent.

3e In a mixed effluent this will typically be based on the 1-in-30-year storm event.

3f If you are applying for more than one effluent discharge you can reference the same document here for more than one part C6 form.

4 Intermittent sewage discharges

Further guidance can be found in Water companies: environmental permits for storm overflows and emergency overflows permits' at <https://www.gov.uk/government/publications/water-companies-environmental-permits-for-storm-overflows-and-emergency-overflows>.

4f and h If your effluent is screened give the maximum flows receiving screening. For split screens give details of the maximum flows receiving the mesh screening as well as the maximum flow receiving bar screening. (The maximum flow receiving screening may also be described as the minimum screen capacity flow.)

4e and g If your effluent is screened give details of the screen size in millimetres and type (bar, mesh or split screen.) If your effluent is from a combined sewer overflow and not screened enter 'N/A' in the answer line to this question and answer question 4j.

5 Should your discharge be made to the foul sewer?

We will not grant a permit for a discharge to surface water or to ground from a private treatment system where it is reasonable to connect to the foul sewer provided by your sewerage undertaker (water company) or a private sewer connected to the foul sewer. You will need to check sewer records with your sewerage undertaker (usually your local water company) and also check to see whether a connection to any existing private sewer is feasible if a foul sewer is not readily available.

We also expect discharges of trade effluent to connect to the foul sewer where it is reasonable to do so, and subject to the sewerage undertaker granting a trade effluent consent/agreement.

Where you are proposing a discharge from a private treatment system in an area where it appears reasonable to connect to the foul sewer, you must, as a minimum, send us evidence that you have approached the sewerage undertaker under the relevant section of the Water Industry Act 1991 (WIA), and send us their formal response regarding connection. You must send us this evidence with your application, otherwise it will delay the determination process.

Where connection to the foul sewer is possible via a private sewer, you must submit written evidence to show that you have requested to connect to the private sewer. The written response(s) from the owner(s) of the private sewer must be provided.

If the sewerage undertaker has indicated that it would not allow connection due to lack of capacity you should call us for a pre-application discussion on 03708 506 506.

If you are applying for an existing discharge where no part of the treatment system needs replacing or upgrading, you may give this as a reason for not connecting to a nearby sewer but you must provide the date the treatment system was installed as accurately as you can.

5a This question requires you to measure the shortest distance between any boundary of the premises served by the private treatment system and the nearest foul sewer.

5b If you have answered ‘yes’ to 5b, you need to show the difference between the cost of connection to the foul sewer and that of your proposed private treatment system. This applies to new discharges, or existing discharges where you are proposing to replace or upgrade any part of your existing treatment system because the size of the development will increase in the future or has increased since the system was installed. The costs should include, but not be limited to, details of both foul sewer connection costs and the proposed treatment system costs.

Foul sewer connection costs

Please provide the following information, where relevant:

- Cost of sewer pipe and infrastructure (for example, gravity sewer, manholes, or rising main and pumping)
- Pumping equipment, pump and sump pump, if necessary; also maintenance/running costs of these if they are not adopted by the sewerage undertaker
- Digging up of roadside verges, roads or land on the route to the sewer and making good
- Road closure costs
- Legal easements to cross land, cost of land purchase
- Initial connection charges from the sewerage undertaker

The sewerage undertaker will expect any pipe work connecting to its system to be constructed to adoptable standards. Refer to ‘Sewers for adoption 7th edition – A design and construction guide for developers’ for more information.

Proposed treatment system costs

Please provide the following information, where relevant:

- Cost of treatment system, pipe work and other materials
- Pumping equipment
- Installation, including excavation and digging up of roadside verges, roads or land on route to the treatment system, making good and commissioning
- Road closure costs
- Legal easements to cross land, cost of land purchase
- Maintenance and running costs

Your justification must also include details of any physical obstacles that may impede connection to the foul sewer, for example: topography; roads; railways; designated habitat sites; rivers or canals.

If you require additional guidance on connection to sewers please call us for a pre-application discussion on 03708 506 506.

6 How will the effluent be treated?

6b You must choose each element of your treatment process in the order that they are carried out and enter them in Table 2. You must write down the treatment type code number and also its standard description. The most common descriptions are listed below.

If you are using one of these, you can insert the number and name of the type from the list below into Table 2. If you choose ‘other’, you must ensure that your short description adequately explains the treatment process.

For installations with point source emission to water or sewer, there is no need to duplicate information already provided in part C3 form.

Code	Treatment
99	None
32	No treatment required – good engineering design
14	Land irrigation
06	Septic tank
11	Screening
12	Maceration
10	Lagoon settlement
16	Oil interceptor
19	pH correction
09	Primary settlement
BS	Package treatment plant which meets BS12566
29	Package treatment plant
1	Biological filtration
2	High rate biological
24	Oxidation ditch
04	Chemical
28	Flotation
31	Activated sludge
30	Reedbed
33	Membrane filtration
03	Tertiary biological
08	Chemical – phosphate stripping
17	Chlorination
18	Dechlorination
20	Activated carbon
21	Sand filtration
22	UV disinfection
	Other

7 What will be in the effluent?

If you have answered ‘yes’ to any of 7a to 7d, the discharge contains, or potentially contains, specific substances. You must answer question 8 and send us the screening or modelling and data.

‘Specific substances’ means:

For a groundwater activity:

- hazardous substances (as defined by paragraph 4 of Schedule 22 to the Regulations)
- non-hazardous pollutants (as defined by paragraph 5 of Schedule 22 to the Regulations)

This does not include discharges that only contain, or are only likely to contain as their primary pollutants, ammoniacal nitrogen or ammonium and suspended solids.

You can find a list of these substances at <http://www.wfduk.org/resources/groundwater-hazardous-substances-standards>. For a water discharge activity:

- priority hazardous substances
- priority substances or other pollutants as defined by the Environmental Quality Standards Directive (EQSD) (2008/105/EC, as amended by 2013/39/EU)
- specific pollutants as defined by the Water Framework Directive (Standards and Classification) Directions (England and Wales) 2015
- other substances that were listed in Part 6 of the River Basin Districts Typology, Standards and Groundwater threshold values (Water Framework Directive) (England and Wales) Directions 2010.

You can find a list of these substances at <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit>.

8 Environmental risk assessments and modelling

Further guidance can be found in ‘Surface water pollution risk assessment for your environmental permit’ at <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit> and ‘Groundwater risk assessment for your environmental permit’ at <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit> or by calling 03708 506 506.

We strongly recommend that you contact us for pre-application advice before submitting an application that requires you to carry out an assessment.

8a For discharges of final effluent from a water company WwTW or intermittent sewage discharges, you must submit a sewer modelling report. We are unable to undertake this work on your behalf, but we can offer advice as to what assessment work needs to be done.

8b For discharges to lakes, estuaries, coastal waters or bathing waters you must submit a modelling report. In addition, if you have answered ‘yes’ to any of 7a to 7d, the discharge contains, or potentially contains, specific substances. You must carry out a specific substances screen using the H1 screening tool and send us the completed tool along with the raw data used to create the summary statistics. Please see the guidance to question 8c for more detail. If the screening tool finds the amounts of specific substances to be potentially significant, you must carry out modelling and send it to us with your application. We cannot undertake assessments on your behalf, but we can offer advice as to what needs to be done. If you do not have the skills to do this yourself, then you will need to engage a consultant to advise you and to undertake the assessment.

8c For discharges to a freshwater (non-tidal) river, if you have answered ‘yes’ to any of 7a to 7d, the discharge contains, or potentially contains, specific substances. You must carry out a specific substances screen of sample data using the risk assessment screening tool in ‘Surface water pollution risk assessment for your environmental permit’ at <https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit>. Send us the completed tool along with the raw data used to create the summary statistics.

The following information is required to allow the assessment to be undertaken:

- Which substances may be present in the discharge? Substances may be present if:
 - They have been measured (i.e. detected by chemical analysis) in the discharge
 - They are permitted or otherwise allowed to be discharged into the effluent
 - They are dosed into the effluent
- For existing discharges, the discharge effluent will need to be analysed for all the substances that may be present in the effluent. Baseline (upstream) river quality data may also be beneficial, as it will provide more accurate information for the assessment to be undertaken
- For new discharges, estimated or proxy site data will be necessary

- For each substance, please provide the information set out in the table below

Substance	The chemical name of the substance being analysed
Unit	The units of measurement. These will usually be micrograms per litre (µg/l), but may also be mg/l or ng/l
Maximum concentration	The maximum recorded concentration of the substance in the effluent
Minimum concentration	The minimum recorded concentration of the substance in the effluent
Mean concentration	The average recorded concentration of the substance in the effluent
Maximum flow	The maximum recorded effluent flow
Mean flow	The average recorded effluent flow
Number of samples	The minimum number of samples required for screening and modelling is 12; the ideal number is 36 (or, for new discharges, assumed means and standard deviations can be accepted if effluent data are not available)
Total and/or dissolved metal data	As a minimum, total metal data are required for all metal analyses. Dissolved metal data are also required to allow accurate modelling; if dissolved metal data are not supplied, total metal data can be used for modelling but will result in a more precautionary assessment
Required limit of detection	‘Surface water pollution risk assessment for your environmental permit’ at https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit should be checked to determine the minimum acceptable limit of detection for the analysis of each substance. If the detection limit used is not low enough, the analysis may need to be repeated
EQS	The relevant environmental quality standard for the substance. This can be found in ‘Surface water pollution risk assessment for your environmental permit’ at https://www.gov.uk/guidance/surface-water-pollution-risk-assessment-for-your-environmental-permit

For discharges to a freshwater (non-tidal) river, in general you do not need to carry out modelling for sanitary parameters such as biochemical oxygen demand or ammonia. Most of the information we will need to do this can be provided on part C6, but you may need to add other relevant details. If our assessment concludes that we are not able to accept the proposed activity, we may ask you to provide further evidence by carrying out a higher level of assessment yourself, or we may advise you that the proposed discharge is unacceptable. Where you plan to do the assessment yourself you may need to contact us for information or advice first.

8d For discharges to groundwater, we will usually be able to carry out a risk assessment for you where the discharge is less than 15 cubic metres per day and in a non-sensitive area, (see <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit> for further information).

We will expect you to do the risk assessment in other situations and we can offer advice as to what needs to be done. If you do not have the skills to do this yourself, then you will need to engage a consultant to advise you and to undertake the assessment. For further guidance see ‘Risk assessments for your environmental permit’ at <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit>.

For groundwater remediation schemes you must send us send a site-specific remediation strategy that has been agreed with the local Environment Agency groundwater and contaminated land team. This should include:

- conceptual model
- quantitative site-specific risk assessment
- site-specific remedial targets
- details of the contaminant concentrations contained within the proposed discharge

9 Monitoring arrangements

9a This is the sample point that will be used for discharges which are made up of returned abstracted water, for example, fish farms or cooling water. In these cases, we will set a comparative limit to assess compliance against. It is also required for larger sewage treatment sites that meet the requirements of the Urban Waste Water Treatment Directive (UWWTD). It allows a composite sample of the influent to the sewage treatment works to be obtained. You must provide a permanent means of access to monitoring points.

9b This is the sample point used to assess compliance with any water quality emission limits on your permit. You must ensure that it allows a representative sample of the discharge to be obtained. You must also ensure that all constituents of the discharge pass through the sampling point at all times. The sample point can be where the effluent meets the receiving environment only in cases where no other effluent is added before this point. You must provide a permanent means of access to monitoring points.

Note: for small existing discharges to ground only

If you are applying for a permit for an existing discharge of treated sewage effluent of not more than 5 cubic metres a day to ground (for example, using a drainage field) which does not already have a sample point we will not expect you to provide one.

9c This is a requirement for larger sewage treatment sites that meet the requirements of the UWWTD. It allows a composite sample of the final effluent from the sewage treatment works to be obtained. Further guidance on the UWWTD can be found on our website. You must provide a permanent means of access to monitoring points.

9d If your effluent has a maximum volume of not more than 50 cubic metres a day you do not need to complete questions d, e or f If you fall into this category you should enter 'N/A' in the answer line to this question.

This will be the location of your flow monitoring equipment where compliance with the volume limits on your permit will be assessed.

9e Further guidance can be found in 'Discharges to surface water and groundwater: environmental permits' at <https://www.gov.uk/guidance/discharges-to-surface-water-and-groundwater-environmental-permits>

9f This type of monitoring point is only required for discharges that undergo some form of disinfection. For example, ozone or ultraviolet disinfection, membrane filtration and so on.

9h You must send us a map or plan that:

- is A4 or larger
- is at a scale of 1:10,000 (approximately 6 inches to 1 mile)
- shows clearly which direction North is

The plan should show:

- the premises discharging effluent
- the site in relation to the local area

- any watercourses, wells, springs or boreholes on the site (or within 50 metres of it)

Please also mark the map to show the points where:

- effluent is discharged into the controlled waters
- samples of effluent and influent can be taken automatically or manually (if required)
- flow or quality will be measured (if required)

You may submit more than one plan if necessary.

10 Where will the effluent discharge to?

Effluents are usually discharged to one location in one receiving environment. However, if your effluent can be discharged to more than one location within a single receiving environment, for example, two different discharge points on a non-tidal river, you should complete the appropriate appendix and ensure you give all relevant details of every discharge point that the effluent can be discharged through.

To do this you will need to complete a relevant appendix for each separate discharge point for an effluent and explain any different circumstances under which each is used.

If your effluent discharges to more than one location in a different receiving environment, for example, to a borehole or to a non-tidal river (under different circumstances), you will need to complete all relevant appendices for each discharge point and explain the different circumstances under which each is used.

Note: You need to make sure that you have all the necessary permissions to discharge from landowners, for example The Canal and Rivers Trust, if you want to discharge into a canal that they manage, or the local highways authority if you want to discharge via a highway drain.

Fill in the relevant appendix for each effluent discharged.

11 How to contact us

If you need help filling in this form, please contact the person who sent it to you or contact us as shown below.

General enquiries: 03708 506 506 (Monday to Friday, 8am to 6pm)

Textphone: 03702 422 549 (Monday to Friday, 8am to 6pm)

Email: enquiries@environment-agency.gov.uk

Website: www.gov.uk/government/organisations/environment-agency

Appendices 1 to 6

Appendix 1 – Discharges to a borehole or well (or other deep structure)

Drainage fields are considered to be an important component of a non-mains waste water treatment system. The most common design of drainage field is the shallow linear infiltration trench. This receives treated effluent from septic tanks and waste water treatment plants and uses the biologically active soil beneath the system to provide additional treatment of the effluent in the ground.

British Standard BS 6297, 'Code of practice for the design and installation of drainage fields for use in wastewater treatment', provides guidance for those designing and installing shallow drainage fields and infiltration systems. It states that deep pit-based systems should not be used as they do not provide sufficient treatment. Deep infiltration systems such as boreholes, wells, shafts, concrete ring soakaways or natural features such as swallow holes pose a higher risk of groundwater pollution by concentrating the discharge in one place and bypassing the soil layers, thereby limiting the potential for attenuation of contaminants. We are therefore likely to refuse an environmental permit for discharges that we believe are direct to groundwater. Direct discharges of pollutants to groundwater cannot be permitted and consideration should be given to how to make any such direct discharges indirect.

Discharging effluent into deep infiltration systems is generally acceptable only in cases where:

- It has been robustly demonstrated that there is no alternative (for example, discharge to a shallow infiltration system or surface water)
- There is adequate evidence to inform a risk assessment which shows there will not be an unacceptable risk to environmental receptors including groundwater
- Robust evidence is provided to demonstrate that the borehole will be no deeper than necessary to obtain sufficient infiltration
- Evidence is provided to demonstrate how the discharge will not be direct to groundwater
- Where a new discharge is proposed, the effluent will first be treated by a package treatment plant

In order to answer the first four points above, you must read the guidance on the use of deep infiltration systems for surface water and effluent disposal, at <https://www.gov.uk/government/collections/groundwater-protection> and <https://www.gov.uk/guidance/infiltration-systems-groundwater-risk-assessments>. These provide further information on our position.

For discharges of up to 15 cubic metres per day of sewage effluent to a borehole, well or other deep infiltration system the Environment Agency will usually undertake the required risk assessment using the input parameters supplied by the applicant. If the discharge is very complex or more than 15 cubic metres per day we may ask the applicant to undertake this risk assessment.

Please provide as much information as possible to help us assess your application. In addition to the questions on part C6 we also need you to supply us with sufficient site-specific information to run a risk assessment on your behalf. Table 5 summarises the information required.

1.1 This is the location where the effluent pipe enters the well or borehole.

1.6 This is the distance from ground level (or any other reference level you specify) to the bottom of the borehole or well or other structure. If you are intending to discharge into a natural feature such as a swallow hole, you may not have precise depths but please give as much information as you can.

Tell us if the borehole extends into the water table. If you cannot answer this question we will assume that it does, and this is likely to affect your application. If the borehole extends into the water table it is important that you tell us the distance from ground or other reference level (such as the top of the borehole or well casing) to the highest level that the surface of the water reaches in the well, borehole or structure. This information constitutes an important part of our assessment process and we will expect that deep structures are no deeper than necessary to achieve sufficient soakage in order to maximise percolation

through the sub-surface before entering groundwater. We need to understand how you will avoid discharging treated effluent directly into groundwater.

1.14 In order to determine whether your application to discharge to a borehole or other deep structure is acceptable, we will undertake a groundwater quantitative risk assessment on your behalf in line with the guidance in ‘Groundwater risk assessment for your environmental permit’ at <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit>. Further information as set out in this section of part C6 is required in order for us to complete the risk assessment and for your application to proceed. To meet this requirement information specific to the site should be provided where it is already available. You should see, for example, if there are any existing wells or boreholes in the locality that could be used to provide some of the information required. If this is not possible you can submit relevant literature values, quoting the reference source and justifying your chosen values. We do not expect you to drill a new borehole specially to provide the information requested in Table 5.

Appendix 2 – Discharges into land

Note: For sewage discharge permit applications up to 15 cubic metres per day to ground, we will carry out an initial assessment for you. If your discharge fails this assessment and we are unable to resolve the matter using our own data we will request more information and may ask you carry out your own investigation and risk assessment based on our guidance ‘Risk assessments for your environmental permit’ at <https://www.gov.uk/guidance/risk-assessments-for-your-environmental-permit> and ‘Groundwater risk assessment for your environmental permit’ at <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit>.

We will expect applicants to carry out their own assessments in accordance with this guidance for sewage discharges over 15 cubic metres per day and for all trade and other effluent discharges.

2.2 This is the location where the effluent from the treatment system enters the infiltration system.

2.3 An infiltration system is a restricted and well-defined area of ground designed to allow liquid to drain into the surrounding soil. It typically includes a system of sub surface perforated pipe. We would expect any new infiltration system to be built to BS 6297:2007 + A1:2008.

2.5 We would expect new infiltration systems to be built to BS 6297:2007 + A1:2008. If yours is not constructed to this standard, you must submit the following details:

- location of the infiltration system
- surface area
- depth
- construction materials used
- the bottom invert level in relation to the water table

2.6 Use the following information to help you carry out a percolation test (applies to new infiltration systems only): Avoid carrying out this test in extreme weather conditions such as drought, frost and heavy rain.

- a) Excavate at least two holes 300 mm square to a depth 300 mm below the proposed invert level (bottom of pipe) of the infiltration pipe and space them evenly along the proposed line of the subsurface irrigation system.
- b) Fill each hole with water to a depth of at least 300 mm and allow to seep away overnight.
- c) Next day, refill each hole with water to a depth of at least 300 mm and observe the time in seconds for the water to seep away from 75% full to 25% full (i.e. a depth of 150 mm).
- d) Divide this time by 150. This answer gives the average time in seconds (V_p) required for the water to drop 1 mm.
- e) The test should be carried out at least three times with at least two trial holes. The average figure from the tests should be taken.

This is the percolation value Vp (in seconds).

- f) The average figure for the percolation value (Vp) is obtained by summing all the values and dividing by the number of values used.
- g) Drainage field disposals should only be used when percolation tests indicate average values of Vp between 15 and 100 and the preliminary assessment of the trial hole tests has been favourable.
- h) The minimum value of 15 ensures that untreated effluent cannot percolate too rapidly into groundwater.
- i) Where Vp is above the limit of 100, effective treatment is unlikely to take place in a drainage field as there will be inefficient soakage in this location which may lead to sewage ponding on the surface.
- j) For domestic premises, the floor area of the drainage field (A in square metres) required may be calculated from:

$$A = p \times Vp \times 0.25 \text{ for septic tanks}$$

$$A = p \times Vp \times 0.20 \text{ for package sewage treatment plants}$$

where:

p is the number of people served by the tank (this should be the maximum number of people that could live in the house).

Vp is the percolation value described above.

If in doubt, consult your professional advisor or local authority building control officer for advice.

2.7 It is important that we know what your percolation value (Vp) is (see question 2.6). BS 6297:2007+A1:2008 states that 'a drainage field for disposal should only be used when percolation tests indicate average values of Vp between 15 and 100.' The minimum value of 15 ensures that effluent cannot percolate too rapidly into the ground, potentially resulting in the pollution of groundwater. If your Vp is below this figure you may be required to add an additional 700 mm deep layer of medium or coarse, washed sand, laid on a permeable geotextile membrane, below the standard granular fill distribution layer. You will have to agree to design your drainage field based on this recommendation.

2.8 Use the following calculations:

For sewage treatment plant:

$$Vp \text{ (percolation value)} \times P \text{ (number of inhabitants)} \times 0.2 = \text{surface area}$$

For septic tank:

$$Vp \text{ (percolation value)} \times P \text{ (number of inhabitants)} \times 0.25 = \text{surface area}$$

Appendix 3 – Discharges onto land

Use this appendix where you are using a constructed disposal area to discharge your effluent onto land.

3.2 This is the location where effluent from the treatment system enters the disposal area.

3.3 This is the total area covered by the reed bed/grass plot/pond/wetland.

Appendix 4 – Discharges to tidal river, tidal stream, estuary, or coastal waters

4.2 This is the location where the effluent exits the effluent carrier pipe into the river channel, estuary or coastal waters. On occasion discharges are made via surface water sewers. In this case the outlet will be the point where the surface water sewer meets the river channel, estuary or coastal water.

4.3 Usually the name will be shown on an Ordnance Survey map. If the receiving water is unnamed, please indicate the named watercourse into which it flows; for example, 'a tributary of the River Thames'.

4.5 Most effluents pass along a dedicated pipe and are discharged via an outlet to a receiving water. In some cases effluents may be discharged into a surface water sewer owned by someone else before they

discharge into a receiving water. If this is the case you must give the grid reference where your discharge enters the surface water sewer.

4.6 The mean low water spring tide mark can usually be found on Ordnance Survey maps. Where reasonably possible, we prefer that discharges are made below this point to prevent effluent flowing across beaches, exposed river beds or mud flats and so on.

4.7 Choose ‘open pipe’ if the effluent enters the tidal river, estuary or coastal water from a pipe. We will have told you if a diffuser is needed during pre-application discussions.

4.8 We need to know the type, number, their position and the volume they will handle. Your design should have been established through the coastal modelling you have undertaken.

4.9 In the site plan and the application form, the ‘discharge point’ is the point where the highway drain joins the watercourse, lake, estuary or coastal water. The sample point should be a point upstream of the connection to the highway drain.

Appendix 5 – Discharges to non-tidal river, stream or canal

5.2 This is the location where the effluent exits the effluent carrier pipe into the river channel, watercourse or stream. On occasion discharges are made via surface water sewers. In this case the outlet will be the point where the surface water sewer meets the river channel, watercourse or stream.

5.3 Usually the name will be shown on an Ordnance Survey map. If the receiving water is unnamed, please indicate the named watercourse into which it flows; for example, ‘a tributary of the River Thames’.

5.5 Most effluents pass along a dedicated pipe and are discharged via an outlet to a receiving water. In some cases effluents may be discharged into a surface water sewer owned by someone else before they discharge into a receiving water. If this is the case you must give the grid reference where your discharge enters the surface water sewer.

5.6 We prefer effluent to discharge to watercourses which flow all year. Discharging to a dry watercourse may cause the effluent to pond.

5.6.1 Providing an indication of the typical periods that the watercourse runs dry each year – start and finish (in months) – and also when the watercourse was dry, how many metres downstream of the discharge is it before the discharged effluent soaks in, will help us in deciding whether a groundwater risk assessment is also required as part of your permit application.

If a groundwater risk assessment is required, you will need to complete this unless the discharge is less than 15 cubic metres per day and in a non-sensitive area. See <https://www.gov.uk/guidance/groundwater-risk-assessment-for-your-environmental-permit> for further information.

5.7 In the site plan and the application form, the ‘discharge point’ is the point where the highway drain joins the watercourse, lake, estuary or coastal water. The sample point should be a point upstream of the connection to the highway drain.

Appendix 6 – Discharges to a lake or pond

Use this appendix if you will be discharging your effluent into an existing lake or pond.

A discharge to a lake or pond which has no outlet (does not discharge into a river or watercourse or another pond which discharges into a river or watercourse) does not require a permit unless a Notice has been served under paragraph 5 of Schedule 21 of the Environmental Permitting (England and Wales) Regulations 2016. If you are unsure whether or not you will require a permit for a discharge to a pond or lake you should contact us on 03708 506 506.

6.2 This is the location where the effluent pipe reaches the lake or pond.

6.3 Usually the name will be shown on an Ordnance Survey map.

6.5 If you do not know the answer to this question, put ‘Unknown’.

6.6 If you do not know the answer to this question, put 'Unknown'.

6.7 If you do not know the answer to this question, put 'Unknown'.